

Family Health DataLine

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Among persons in Alaska
15 to 19 years of age:

- The crude mortality rate decreased 38% from 1978-80 to 1990-92.
- Eight of the 10 leading causes of death during 1979-92 were injury-related, accounting for 76% of all deaths.
- Suicides have overtaken injuries due to motor vehicles as the most common cause of death
- Alaska Native males have a suicide rate at least four times greater than other gender and racial groups and have one of the highest suicide rates in the world.

Correction:

In the July issue, the last bullet in the IN THIS ISSUE highlights should have read: An estimated 23,312 children born during 1990-93 were the result of unplanned (rather than unwanted) pregnancies.

Mortality Rates and Causes of Death Among Alaskans 15 to 19 Years of Age

Introduction

To their credit, public health officials have placed considerable emphasis on decreasing infant mortality, an emphasis that has led to the creation of infant mortality reviews in many states including Alaska. Unfortunately, much less emphasis has been placed on addressing mortality among children and adolescents. During the current investigation, we examine overall and cause-specific mortality rates among persons 15 to 19 years of age. Our findings indicate that because most deaths in this age group are caused by injuries they are potentially preventable. We suggest that because current data sources do not address the underlying factors involved in many of the deaths, a child mortality review process may be useful.

Methods

For children 15 to 19 years of age, we reviewed death certificate data tapes provided by the Section of Vital Statistics, Alaska Division of Public Health. Population-based rates were determined using population estimates from the Alaska Department of Labor. We determined the mortality rates associated with firearms by examining International Classification of Diseases, 9th Revision (ICD-9) codes E922 (unintentional discharge of a firearm), E955.0-955.4 (homicide by firearm), and E965.0-965.4 (suicide by firearm).

For overall mortality rates, we used data from 1978 to 1992. The Section of Vital Statistics used ICD-9 coding from 1979 to the present so for cause specific mortality rates we used data from 1979 to 1992. Before 1991, population data was not readily available for blacks and Asians; additionally, for persons 15 to 19 years of age, only two deaths occurred during both 1991 and 1992 while among Asians, one death occurred during each of these years. For these reasons we do not present data for these racial groups.

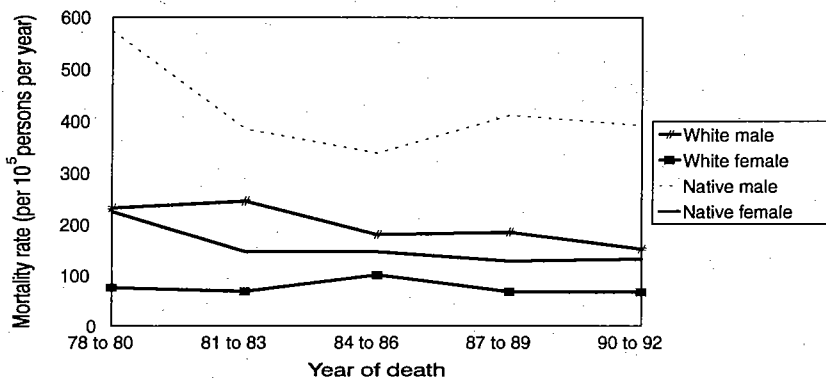
Results

Overall Mortality Rates

The overall mortality rate among persons 15 to 19 years of age decreased from 205 to 139 per 100,000 persons per year from 1978-80 to 1990-92, a decrease of 38%. In addition, the mortality rate for all racial and gender groups examined has decreased during this same time period (Figure 1). Large disparities continue to exist, however, between persons of different racial and gender groups. The mortality rates for native males and females

Figure 1.

Mortality rate for persons 15 to 19 years of age, by year of death, gender, and race; Alaska, 1978-92



during 1990-92 were 392 and 131 per 100,000 persons per year, respectively, compared with 150 and 66 per 100,000 persons per year among white males and females, respectively.

Cause-specific mortality rates

The leading causes of death for persons 15 to 19 years of age during 1979-92 were injuries due to motor vehicles and suicide, accounting for 27% and 22% of all deaths, respectively (Table 1). No other cause of death accounted for more than 8% of total deaths.

Table 1. Mortality from 10 leading causes of death among children 15 to 19 years of age - Alaska, 1979-92.

Cause of death (ICD-9 codes)	Number	Rate (per 10 ⁵ persons per year)	Percentage of total deaths
1. Motor vehicle injuries (E810-825)	233	44	27
2. Suicide (E950-959)	184	35	22
3. Water transport injuries (E830-838)	64	12	7.5
4. Homicide (E960-968)	61	12	7.2
5. Unintentional drowning and submersion (E910)	51	10	6.0
6. Unintentional firearm injuries (E922)	36	7	4.2
7. Neoplasms (140-239)	34	7	4.0
8. Injuries caused by fire and flames (E890-899)	14	2.7	1.6
9. Congenital anomalies (740-759)	5	0.9	0.59
10. Air transport injuries (E840-844)	3	0.6	0.35
All other causes (residual)	139	26	16
All causes	852	160	100

Among the five leading causes of death, temporal trends differed. The mortality rate from injuries due to motor vehicles decreased from a high

of 55 per 100,000 persons per year during 1981-83 to a low of 29 per 100,000 persons per year during 1990-92 (Figure 2). Suicides have increased from a low of 25 per 100,000 persons per year during 1981-83 to 37 per 100,000 persons per year during 1990-92 and have overtaken injuries due to motor vehicles as the most common cause of death among persons 15 to 19 years of age. Deaths due to drowning and injuries sustained during water transport have shown a downward trend while deaths due to homicide have shown no obvious trend from 1979-80 to 1990-92.

Within causes of death, mortality rates varied between different gender and racial groups. Injuries due to motor vehicles were a common cause of death among all gender and racial groups examined and white males had the highest mortality rate from this cause (61 per 100,000 persons per year) (Figure 3). By contrast, Native males had a mortality rate due to suicide (133 per 100,000 persons per year) at least four times higher than any other group. Mortality due to water transport injuries and drowning occurred almost exclusively among males and most commonly among Native males. Mortality due to homicides occurred among all groups but again most commonly among Native males.

Firearm-related mortality

Among persons 15 to 19 years old, the rate of firearm-related mortality increased from 36 (n=97) to 43 (n=113) per 100,000 persons per year from 1979-85 to 1986-92. The rate of suicides associated with firearm use increased from 21 to 30 per 100,000 persons per year, while the rate of homicides associated with firearm use decreased from 8.6 to 6.1 per

Figure 2.

Mortality rates for persons 15 to 19 years of age, by cause of death; Alaska, 1979-92

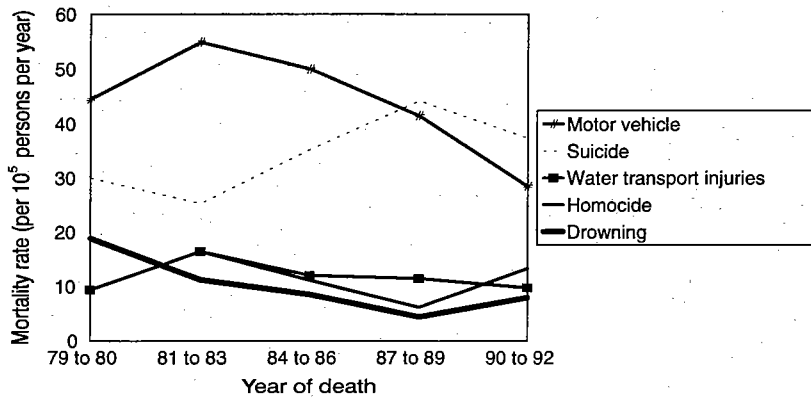
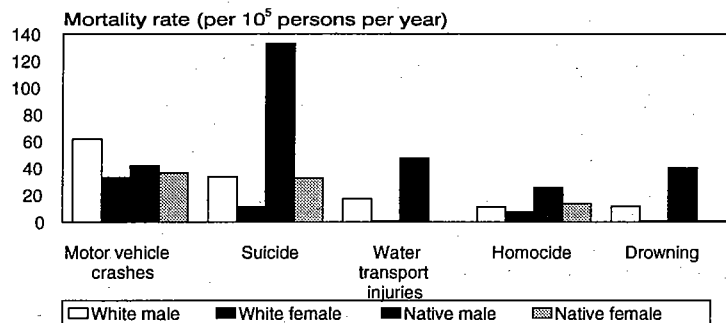


Figure 3.

Mortality rates for children 15 to 19 years of age by cause of death, gender, and race; Alaska, 1979-92



100,000 persons per year. The rate of unintentional injuries from firearms did not change from one period to the next.

Discussion

We present mortality rates for persons 15 to 19 years of age in Alaska by cause of death, gender, and race. It is encouraging that the mortality rates in this age group have decreased during the past 14 years. Unfortunately, preventable causes of mortality, primarily injuries, still claim a large number of lives each year. Eight of the top ten causes of death, accounting for 76% of all deaths, were related to injuries. Similar to the pattern among youth seen in the rest of the country, males and Native Americans had the highest risk of death due to injury (1,2). Mortality rates reflect only a small portion of the adverse health effects and cost related to these deaths. The reader should keep in mind that for every death due to injury, 10 persons may become hospitalized and 100 may be seen in an emergency room (3).

Injuries due to motor vehicles led to more deaths among 15 to 19 year old persons than any other single cause. Additionally, injuries due to motor vehicles were a common cause of death for persons from all gender and racial groups examined. Other investigators have described similar findings (3).

One of the most striking findings from this investigation was the rising

mortality rate due to suicide and the exceptional mortality rate due to suicide among Alaska Native males. To put the Alaska Native male suicide rate of 133 per 100,000 per year into perspective, this is higher than the overall U.S. population based crude mortality rates for every cause of death except diseases of the heart and all malignant neoplasms (4). By comparison, the U.S. mortality rates due to suicide among white and black males 15 to 19 years of age during 1988 were 19.6 and 45.9 per 100,000 persons, respectively (5). Compared to different countries, the suicide mortality rates in Alaska were equally exceptional: among 25 countries examined, the highest suicide rate among males 15 to 24 years of age was 50 per 100,000 per year in Finland (5). We found that suicide deaths due to firearms increased substantially from the first half of the study period to the second. Another group found that firearms were a prevalent method of committing suicide in rural areas, possibly because of access to firearms used for hunting (5).

The homicide rate in Alaska for persons 15 to 19 years of age during 1979-92 was almost double the national average of 4.2 per 100,000 persons during 1986 (6). Moreover, homicide rates in Alaska have not shown a distinctive trend during the past 14 years. As with suicides, the homicide rate among Alaska Native males was particularly alarming at six times the national average. Interestingly, while persons who murder adolescents do so predominantly with firearms, a finding similar to national data, the use of firearms in these homicides has decreased.

The data we present points to important public health issues but does not provide the information necessary to design intervention

strategies. We used only vital statistics data which does not describe the socio-cultural environment in which a person is raised, the physical environment in which a death occurred, or the descriptive characteristics of events which immediately preceded a death such as conflicts and substance use (7). Collection of this information will require close collaboration with the criminal justice system including review of police records, use of the EMS Trauma Registry Data, use of home interviews, review of child protective service records, and medical record and autopsy review. This information may be best collected through a statewide child death review process.

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